

large portion of Europe could be graphically presented. We are much gratified to receive an intimation from the *Seewarte* that in future the *Monthly Reports* will be published regularly at the end of the second month after the one to which the Report relates. It would be a great boon if small maps accompanied the Report, showing the mean pressure, temperature, rainfall, and direction of wind, in a manner similar to what is so well done by the United States of America.

BALL LIGHTNING.—A very fine display of this interesting meteor was witnessed at Venice, in the south-east of France, on the night of March 21–22, by M. Ed. Blanc, of which an interesting detailed account has just appeared in the *Comptes Rendus* of the French Academy, p. 666. Toward midnight there was observed, about eleven miles north-east of Venice, a large black thundery cloud, in a state of extreme agitation, and continually raising and lowering its position. At the upper part of this cloud three or four balls of fire issued every two minutes, as if from the invisible centre of the cloud, diverging in all directions, and after running a course of from six to eight degrees, broke silently with effulgent brightness. Their apparent diameter, as seen at a distance of eleven miles, was about a degree. They were mostly of a reddish colour, a few, however, being of a yellowish tinge, but all of them assumed a white colour in the act of bursting. Their course, which was horizontal and parallel to the plane of the cloud, was relatively slow, not exceeding two degrees per second, and they bore a strong resemblance to immense soap-bubbles, both as regards apparent lightness and general appearance. From time to time a discharge of lightning passed through the cloud from above downwards, followed some seconds after by a dull rumbling sound. The cloud, with its fine display of fire-balls, took a course from east to west, passing about a league to the north of Venice. The glimmering of the lightning with its low dull thunderous sound continued for more than an hour, after which the sky became darker and darker; rain mixed with hailstones fell, and lightning, accompanied with thunder, furrowed the sky in all directions.

NOTES

THE President of the Royal Astronomical Society has announced that the Council of that Society have determined to advance the requisite funds to enable Mr. Gill to carry out his projected expedition to the island of Ascension to measure the parallax of Mars at the approaching opposition, in the expectation that they will be aided by Government or out of the Government grant to the Royal Society. At all events the Royal Astronomical Society will not allow the opportunity of making this important observation to be lost. Its duty in the matter was evident, and it has not hesitated for a moment in doing it. Mr. Gill will embark for the island of Ascension towards the end of next month.

SIR ROBERT CHRISTISON, who has been in failing health for some time, has resigned the Chair of *Materia Medica* in the University of Edinburgh, which he has held with such distinction since the year 1832. Sir Robert, before being appointed to the Chair he has now relinquished, had filled for ten years that of Medical Jurisprudence.

LAST Sunday evening the first of a course of eight lectures to working men on science and literature was delivered at the St. Alban's Schools, Holborn. The lecture was by Mr. R. Bowdler Sharpe, of the British Museum; the subject, "Birds of Prey and their Geographical Distribution." Mr. Mackonochie deserves the hearty thanks of all interested in the welfare of the working classes for having undertaken so liberal an enterprise.

THE Annual Meeting of the Yorkshire College of Science was held at Leeds on the 16th inst. A highly satisfactory report

was presented, in which it was urged that the college should now apply for a charter of incorporation. The great desirability of establishing a classical side in the college was recognised in the report and by the president, Lord F. Cavendish, and other speakers, and there is every reason to hope that in no long time the Yorkshire College will be a flourishing rival of Owens College. The munificence of the Clothworkers' Company deserves all praise and imitation; its last gift to the College is one of 10,000*l*.

DR. JANSSEN has removed his photographic apparatus from the Boulevard Ornano to Meudon, where he is establishing, in barracks given by the French War Office, a permanent physical observatory at the expense of the Government.

ON April 23 next the Paris Academy of Sciences will hold its anniversary meeting for the distribution of prizes. M. Dumas will deliver a lecture on the two brothers Alexander and Adolphe Brogniard, both of them members of the Academy of Sciences, Admiral Paris will be in the chair.

THE Paris Physical Society held its anniversary meeting on April 5. Various apparatus were exhibited, including a number of radiometers, M. Bischoff's gas engine without refrigerator, and a Mouchat reflector for utilising the heat from the sun.

IT has been decided by the Committee of the French Sociétés Savants that special warnings should be sent to the coal pits when large depressions are foreseen, in order to suggest precautions against an escape of fire-damp. Many mining engineers believe that the system will be efficacious. Experience will soon settle the question.

THE U.S. Congress having appropriated 18,000 dollars for a Commission to report on the depredations of the Rocky Mountain locusts, the Secretary of the Interior has appointed as members of the Commission Prof. C. V. Riley, Dr. Cyrus Thomas, and Dr. A. S. Packard. The Commissioners have already mapped out their work for the season, and will direct their attention to insect enemies and parasites, mechanical means for the destruction of the pests, geographical distribution, agricultural bearings of the subject, anatomy and embryology, remedial measures and migrations, &c. Bulletins giving the results of the Commission's inquiries will be issued at intervals.

THE opening meeting of the Yorkshire Naturalists' Union (formerly known as the West Riding Consolidated Naturalists' Society) was held at Pontefract on Easter Monday, April 2, and proved a great success in every way. The Union is a confederation of twenty-four Natural History and Scientific Societies in Yorkshire, banded together for the purpose of holding each summer a combined series of excursions and meetings, of investigating the fauna and flora of the country, and of publishing the results. The union is divided into five sections, viz., vertebrate zoology, conchology, entomology, botany, and geology, which work on the principle of the British Association. This plan was tried for the first time at Pontefract, and so far as it went proved a decided success. The towns represented in the Union are Huddersfield (three societies), Heckmondwike, Clayton West, Barnsley, Wakefield, Ovenden, Stainland, Ripponden, Holmfirth, Liversedge, Rastrick, Mirfield, Honley, Middles-town, Paddock, Bradford, Leeds (two societies), Goole, York, Selby, and Sheffield, numbering in the aggregate nearly 1,200 members. The next meeting will be held at Wetherly, on Whit Monday, May 21.

AT the last meeting of the French Anthropological Society, a long report was read which showed that Druidism was not quite extinct in Brittany, some country people still adhering to Pagan practices in spite of the priests' exertions. It was noticed that the clergy were anxious to destroy menhirs and

other similar relics. A petition has been sent to the ministry to put a stop to this iconoclastic zeal.

A WORK has just appeared in Berlin from the pen of Friedrich von Bärenbach, in which the author endeavours to show that the main features of the evolution theory were partially comprehended and advocated by Herder.

THE German Ornithological Society instituted, during the past year, an extensive series of observations by means of schedules, on the dates of nest-building, appearance of the young broods, movements of migratory birds, &c. The statistics resulting from the first year's observations are now being compiled and will shortly be issued in book form.

THE following College Lectures in the Natural Sciences will be given at Cambridge during Easter Term, 1877:—Gonville and Caius College: On Organic Analysis and Elementary Organic Chemistry, by Mr. Apjohn. Christ's College: On the Elements of Electricity and Magnetism, by Mr. Chrystal. St. John's College: On Chemistry, by Mr. Main. Instruction in Practical Chemistry will also be given. On Stratigraphical Geology, by Mr. Bonney; On Elementary Geology; On Palæontology, by Mr. Bonney. Trinity College: On Electricity (continued), by Mr. Trotter; Elementary Physics (Light, &c.), by Mr. Trotter; Vertebrate Embryology with Practical work, by Mr. Balfour; Practical Elementary Biology, by the Trinity Prælector in Physiology (Dr. Michael Foster). Sidney Sussex College: On the Morphology of Cryptogams, by Mr. Hicks. Downing College: On Chemistry, by Mr. Lewis; On Comparative Anatomy and Physiology, by Mr. Saunders.

THE Trieste papers describe an extensive stalactite cavern, consisting of several galleries, lately discovered in the neighbourhood of the city.

ANOTHER valuable addition has been made to the already enormous ethnographical treasures of the Berlin Museum by the purchase of the extensive collections of the African traveller, Piaggia. The explorer, Schweinfurth calls it the best collection of the kind in existence, and unrivalled in its special department. Although much larger sums were offered by speculators, Piaggia preferred to dispose of it for 75,000*l.* to the Berlin Museum, with the condition that it should be preserved in special apartments bearing his name.

FATHER SECCHI has invented a new electric seismograph with moving smoked paper, which indicates the direction, number, intensity, duration of the shocks, and many other details of great value in connection with seismography.

THE principal article in the April number of Petermann's *Mittheilungen* is on the condition of the bed of the Pacific Ocean, based on the researches of the *Tuscarora*, the *Challenger*, and the *Gazelle*. It is accompanied by a carefully prepared and unusually clear chart, showing by a variety of tints the results which have been obtained.

THE forthcoming number of the Italian geographical journal *Cosmos* will contain an article urging that Italy ought to take a part in Arctic exploration.

IT is stated that the Berlin gorilla, to which we have referred on more than one occasion, is to be brought to London during the present season.

THE annual session of the Congress of French Learned Societies took place at the Sorbonne on April 4, 5, 6, and 7. More than 1,000 *savants* from all parts of France, mostly professors in the several academies, were registered, 300 of whom belong to the scientific sections. M. Leverrier was the president of the scientific department. The question of weather warnings raised several interesting discussions. The final meeting took place as usual

on the 7th, the minister for public instruction, M. Waddington, being in the chair. Gold medals were granted to M. Alluard, of the Puy de-Dôme Observatory; M. Tisserand, astronomer to the Observatory of Toulouse; Rollin, professor at Bordeaux for meteorology; Rouville, professor at Montpellier for geology; Grand-Eury, professor at the School of Mines at St. Etienne for geology. Nine silver medals were also granted to several provincial scientific men, and a number of similar distinctions to the members of the other sections.

THE Geographical Society of Paris held last week an extraordinary meeting for the purpose of procuring funds to build a large house for its own use to be ready by the time of the next International Exhibition. A sum of 300,000 francs is necessary, and will be raised by 1,000 bonds of 300 francs each.

M. LEVERRIER has been elected President of the Association Scientifique de France for the fifteenth time. The society spent about 1,200*l.* in scientific experiments last year.

WE have received from the United States Geological Survey a Hypsometric Map of the United States and a Drainage Map of Colorado.

NEWS has been again received at Munich after a long time, from the African traveller, Dr. Erwin v. Bary. He had safely returned to Ghât from his journey into the Valley Mihero. He is the first European who has visited the hot springs of Sebar-baret, and seen the crocodile-pond. Interesting geological and geognostic results, with a collection of many hitherto unknown plants have been gained from this journey. It was very dangerous owing to the war of the Asgar with the Hogar of Tuareg, and the traveller was in constant risk of attack. The sheikh of Tuareg, Jehenuchen, 102 years old, has lost two sons, so he is not easily propitiated. The murderer of the Dutch traveller, Alexandrine Tinne, whose unhappy fate excited European sympathy, goes about freely in Ghât. Dr. v. Bary will endeavour, notwithstanding the danger, to penetrate further into the country of the Tuareg, in order to prosecute his geological and botanical inquiries.

IN a recent note in *Foggendorff's Annalen* on Maxwell's electromagnetic theory of light, Dr. Fröhlich finds that the application of that theory to good electric conductors leads to results which are in direct contradiction with experience. It is not, however (he considers), to be therefore wholly rejected, as the researches of Boltzmann, Schiller, Sirow, and Root show that its consequences agree with experience very well in the case of dielectrics (solid bodies, liquids, and gases). And the cause of its divergence in the case of metals may probably be found in the simplicity of the theory. The processes in the interior of metals are of course more complicated than those which occur in transparent or non-conducting dielectric media. And as little as the reflection of light on metallic surfaces can be deduced from the simple undulation theory, is it possible for Maxwell's theory to represent such complicated processes.

A CORRESPONDENCE has recently been going on in the *Journal of the Society of Arts* on the suitability of the leaves of the coffee plant as a substitute for tea. There is nothing new in this suggestion, for in Sumatra as well as in Jamaica coffee leaves are "cured" in a similar manner to those of tea in China for use in the production of a beverage. In some parts of India likewise the leaves are gathered, partially dried, fermented, and finally roasted in imitation of the commercial kinds of tea. Considering the composition of coffee leaves there can be no doubt that if properly and carefully cured they might in time become of some commercial value. Whether the husk which surrounds the coffee seed could also be so utilised is another question that has been raised. This coffee husk seems to be generally used in Arabia under the name of "kishr." In a letter on this subject in a recent number of the above journal a correspondent com-

compares the capabilities of Ceylon as a coffee-producing country with that of Arabia, he says: "Ceylon being a damp climate and the coffee fruit succulent it is gathered when at maturity, otherwise like cherries, it would mould on the trees. It is then placed in heaps for a day or two and the pulp allowed to ferment, in which state it is removed by washing. The pulp so washed off is only fit for manure. On the other hand, the climate of Arabia being dry the fruit is allowed to ripen and drop off of itself. In this case the pulp and other coverings dry on the berry and are often not removed for months after. It is from these husks that the *kishr* is made, or, to speak more correctly, this husk is the *kishr*, a decoction of which is used generally as a beverage throughout Arabia. The parchment and silver skin of the coffee amount to a mere nothing, but the dried husk of the Arabian berry amounts on an average to twenty per cent. The Arabs make their *kishr* coffee or a decoction of these husks by bruising about a handful, which is put into hot water in an earthen pan, and placed over a slow fire. A few bruised cardamoms and a little dry cinnamon or ginger is added, the whole being allowed to simmer for about half an hour, when it is ready for use, and is described as a most agreeable beverage. A handful of husks thus treated yields about ten Arab coffee cups, which are about the size of two of our ordinary tea cups. The price of the dried coffee husk at Aden is about two shillings for twenty-eight pounds.

THE Italian Government have granted the sum of 6,000 francs for a special investigation of the natural history of Calabria. This part of Italy is only very imperfectly known; in fact its geognosy, its fauna and flora, both present and palæontological, are a *quasi terra ignota* to scientific research. The task has been confided to Messrs. Dr. Forsyth Mayor for the Palæontology and Zoology of Vertebrata, Dr. Cavanna for Zoology of Invertebrata, Dr. D. Stefani for Geology, and Dr. Arcangioli for Botany—all very earnest and able workers. We may, therefore, look forward with confidence and interest to the results of this expedition.

THE Russian Geographical Society has undertaken the publication of a most important work, being a description of the upper parts of the Oxus, of the Hindu-Kush, and Western Himalayas. The object of the publication is to collect all existing information on the peoples inhabiting the above-named countries—the cradle of the Aryan family. The information will be collected from the works of Burns, Wood, Ferrier, Cunningham, Shaw, Hayward, Abramof, Grébenkin, Kuhn, Sobolef, and Fedchenko, and also that obtained from Chinese sources by Klaproth, Rémusat, St. Julien, Sakinf, Palladiz, &c. This compendium will be accompanied by an ethnographical map and vocabularies of local dialects, as well as by bibliographical notices scattered in many papers, especially English. The Committee intrusted by the Society with the discussion of this scheme will add to the work a general geographical sketch of the country. The work will be under the direction of Prof. J. P. Minayeff.

THE same Society is now preparing a scheme for the ethnographical and anthropological exploration of the Finnish tribes inhabiting the neighbourhoods of the Volga.

AT the last meeting, March 14, of the Russian Geographical Society, Lieut. Onatsévich gave an account of his geographical work during 1874 to 1876 in North-eastern Siberia and the Sea of Okhotsk. The most interesting part of his account was that devoted to the attempt he made in the clipper *Vsadnik* to reach Wrangell Land through Behring Strait. Under lat. 67° the ship met, however, with a thick impenetrable barrier of ice, and was compelled to take a westerly course. In this direction, also, she soon met with ice and was forced to return. Lieut. Onatsévich then cruised about in the open parts of the ocean, making

a series of very valuable measurements of depths, temperature of water, &c. He noticed thus the existence of a warm current which, after running through Behring Strait, takes a westerly direction. A great number of very valuable maps and of profiles of the sea-bottom were exhibited during the reading of the paper.

WE have received the Annual Report of the Goole Scientific Society. Some very good papers have been read at the meetings and an attempt has been made to systematically work out the natural history of the neighbourhood.

THE slab of sandstone, from Corncockle quarries, with the impression of footprints, which lately came into the possession of Mr. M'Meehan, Dumfries, has just been acquired by the Museum of Science and Art in Edinburgh. This slab is an unusually interesting one, as it has the impressions of two distinct footprints on it—*Chelichnus ambiguus* and *Herpetichnus sauropleisius*—Jardine ("Technology of Annandale"). On none of the slabs in the collection of the late Sir William Jardine, which is now in the Museum in Edinburgh, are to be found the footprints of two different animals, although both the above-mentioned footprints occur on separate slabs.

THE additions to the Zoological Society's Gardens during the past week include a Bennett's Wallaby (*Halmaturus bennetti*) from King's Island, presented by Miss E. Woollatt; a Malabar Green Bulbul (*Phyllornis aurifrons*) from India, presented by Mrs. Arabin, F.Z.S.; two Smooth Newts (*Triton teniatus*), European, presented by Master G. L. Sclater; eighteen Red-crested Whistling Ducks (*Fuligula rufina*), four Spotted-billed Ducks (*Anas pacilorrhyncha*), a Ring-necked Parrakeet (*Palawornis torquata*) from India, a Green Monkey (*Cercopithecus callitrichus*) from West Africa, a Brown Capuchin (*Cebus fatuellus*), two Scaly Doves (*Scardafella squamasa*), a Great American Egret (*Ardea egretta*) from South America, a White-fronted Guan (*Penelope jacucara*), a White eye-browed Guan (*Penelope supercilialis*) from South East Brazil, deposited; an Impeyan Pheasant (*Lophophorus impeyanus*) from the Himalayas, two Siamese Pheasants (*Euplocamus praelatus*) from Siam, purchased; two Alpine Marmots (*Arctomys marmotta*), European, received in exchange; a Chinchilla (*Chinchilla lanigera*) born in the Gardens.

SCIENTIFIC SERIALS

American Journal of Science and Arts, March.—In memoriam Fielding Bradford Meek.—Notes on the age of the Rocky Mountains in Colorado, by A. C. Peale.—On some points in connection with vegetation, by S. H. Gilbert.—Apparatus for quantitative fat extraction; composition of the sweet potato; composition of maize fodder, by S. W. Johnson.—Meteoric stone of Rochester, Fulton Co. Indiana, by C. U. Shepard.—Examination of the Waconda meteoric stone, Bates County meteoric iron, and Rockingham County meteoric iron, by J. Lawrence Smith.—Certain features of the valleys or water-courses of Southern Long Island, by Elias Lewis.

Poggendorff's Annalen der Physik und Chemie, No. 1, 1877.—Measurements of diamagneto-electric induction currents, by MM. Töpler and Ettingshausen.—On the absorption of radiant heat by aqueous vapour, by M. Haga.—On the dependence of galvanic resistance on current-strength, and Edlund's theory of diaphragm-currents, by M. Dorn.—On the intensity of fluorescence-light, by M. Lommel.—Remarks on Maxwell's electromagnetic theory of light, by M. Fröhlich.—New method of determining exactly the fusing-point of metals and of other matters which are bad conductors of heat, by M. Himly.—On the electric resistance of liquids under high pressure, by M. Herwig.—A perfectly air-tight barometer quickly, easily, and cheaply made without boiling, by M. Bohn.—On diffusion, and the question whether glass is impenetrable for gases, by M. Quincke.—On the polarised light of the rainbow, by M. Dechant.—On ardenite, and a method for separation of vanadic acid from argillaceous earth and iron oxide, by M. Bettendorff.—On the composition of pyrite of cobalt and allied minerals, by M. Rammelsberg.—On the Torricellian vacuum, by M. Moser.—Experiments with the